



# **“Policy to Projects” Process NCDOT**

**February 19, 2013**

**Joint Appropriations Subcommittee on Transportation**

**Mike Bruff, Alpesh Patel, Calvin Leggett, Delbert Roddenberry**



## Outline

- **History of Reform at NCDOT – Alpesh Patel**
- **Long-Range Transportation Planning – Mike Bruff**
- **10 & 5 Year Work Program / Strategic Prioritization – Alpesh Patel**
  - Mobility Fund and Urban Loops
- **State Transportation Improvement Program – Calvin Leggett**
- **Unpaved Secondary Road Prioritization – Delbert Roddenberry**



## History of Reform

### Challenges facing the Department prior to 2009:

- 7-Year Construction Program (more needs vs. revenue)
- Delivery Rate below 50%
- Clear priorities not established
- Various mission and goal statements
- Inability to clearly & regularly convey performance results



# Transportation Reform: “Policy to Projects”

- Strategic Planning
- Improved Communication
- Public Input
- Data-Driven Decisions & Prioritization Process
- Open and Visible Process (Transparency)
- Accountability and Performance (Credibility)
- Performance & Results Driven Organization
- Role of the Board of Transportation





# NCDOT's Strategic Planning Framework

## N.C. Statewide Transportation Plan (2040 Plan)

Blueprint for transportation planning and investment over the next three decades.

- ❖ Adopted by NC Board of Transportation in August 2012

## NCDOT Program and Resource Plan (10 Year)

Allocates funds for all programs and predicts the outcomes for the level of investment

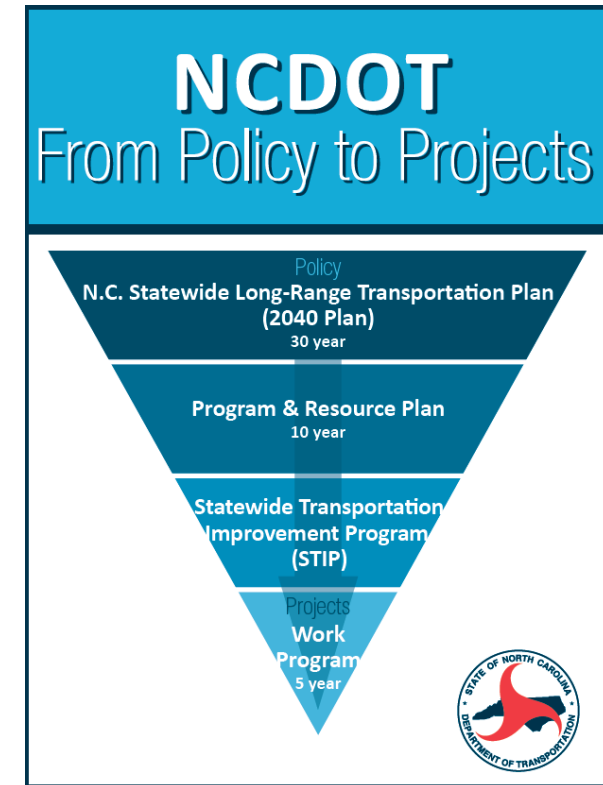
- ❖ Guided by strategic prioritization and cash model, also statutory, legal and scheduling constraints

## NCDOT State Transportation Improvement Program (STIP – 7 years)

## NCDOT Work Program (5 Year)

Comprehensive list of projects, programs, and services

- ❖ Goal: Increase partner/public confidence in a stable, reliable schedule





# Long-Range Transportation Planning

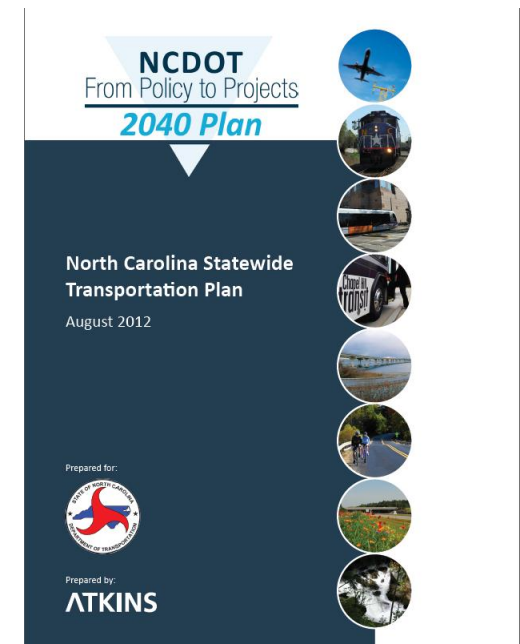
**Mike Bruff**



# 2040 Plan Overview

The 2040 Plan identifies:

1. Challenges & Opportunities
2. Long-term modal infrastructure and service needs
3. Sustainable financing options
4. Strategic investments and plan implementation





## **2040 Plan is a major update of NC's Statewide Transportation Plan:**

- NCDOT's overarching guide for transportation planning and programming.
- A broad direction for where NCDOT should concentrate efforts in the future.
- High-level document to guide NCDOT spending and policy decisions.
- Recommendations for needed process improvements for NCDOT to pursue.





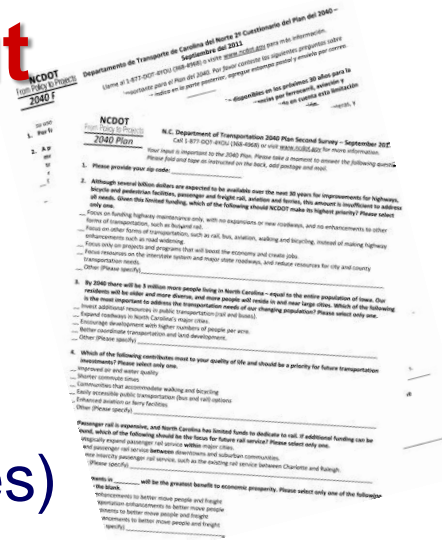
## 2040 Plan Is NOT:

- A schedule for project implementation.
- A list of specific projects.
- A recommended future funding strategy.



# Public & Agency Input

- Statewide Stakeholder Group
- Agency Coordination Group
- Regional Stakeholders webinars
- 3 surveys (more than 8,500 total responses)
- MPO/RPO regional workshops & MPO/RPO Association briefings





# Metropolitan Planning Organizations

**A Metropolitan Planning Organization (MPO) is established in federal law and is responsible for:**

- Carrying out a Continuing, Cooperative and Comprehensive (3C) transportation planning process in cooperation with the state DOT and transit operators
- Cooperatively developing, updating, and approving:
  - (Unified) Planning Work Program ((U)PWP)
  - Metropolitan Transportation Plan (LRTP)
  - Transportation Improvement Program (TIP)
  - Project Priorities for MPO Area
  - Air Quality Conformity
- Having a proactive Public Involvement Process (PIP)





# Rural Planning Organizations

**A Rural Planning Organization (RPO) is established in state law and is responsible for:**

- Assisting NCDOT in developing comprehensive transportation plans (CTP)
- Providing a forum for public participation in the transportation planning and project development processes
- Developing and prioritizing projects it believes should be included in the STIP
- Providing transportation-related information to local governments





# 2040 Plan – How Needs Were Identified

## Urban Needs:

- Pulled from Metropolitan Planning Organizations' (MPO) adopted transportation plans

## Rural Needs:

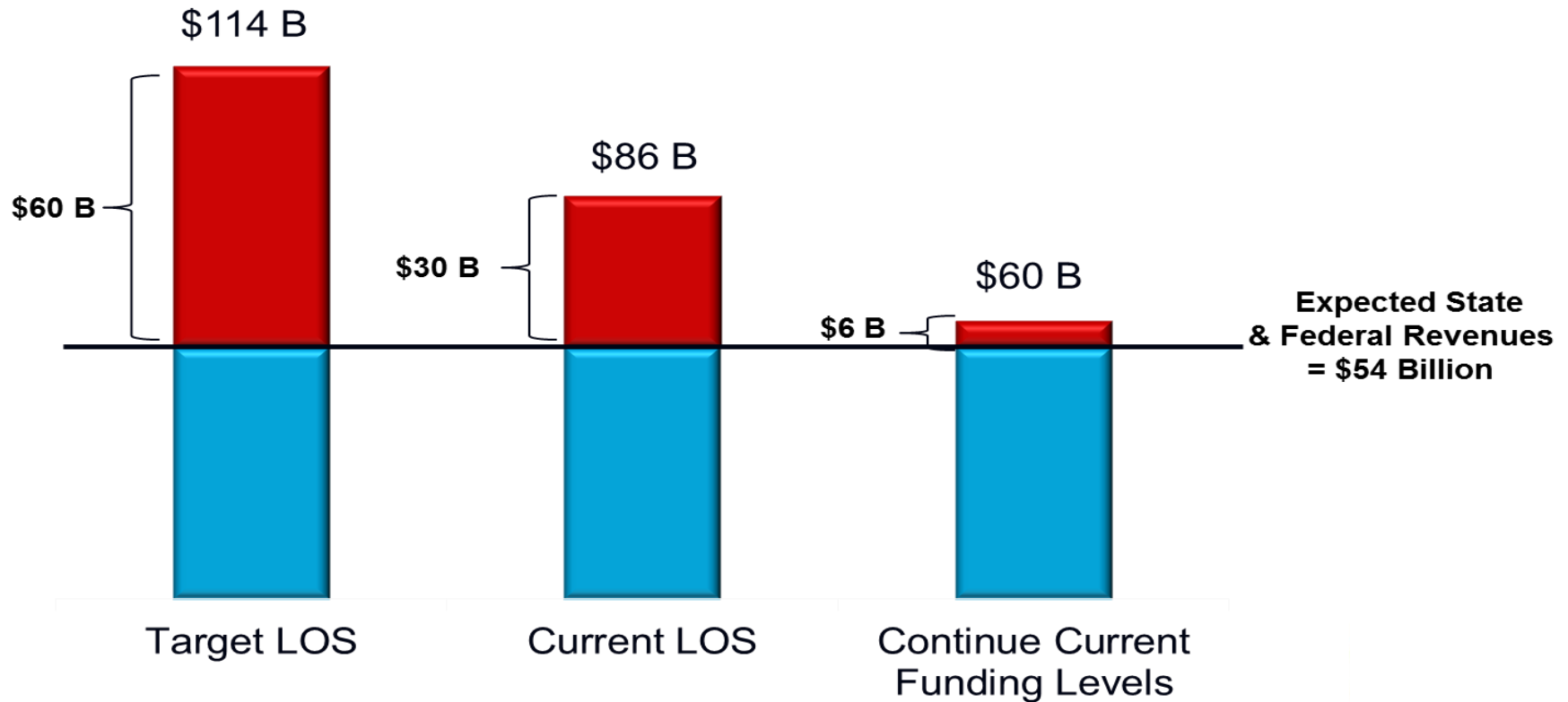
- Based on traffic growth rates, roadway characteristics, and bridge and pavement management systems

## Other Modes:

- Based on existing plans within NCDOT modal units



# NCDOT's 30-Year Needs and Funding Gap



Note: LOS = Level of Service



# Key Findings and Conclusions of the 2040 Plan

- Transportation needs remain large and challenging.
- Current transportation funding is insufficient.
- Describes various revenue options.



# 10 & 5 Year Work Programs

## Alpesh Patel





## Why Develop 10 & 5 Year Work Programs?

- Short-Term business plan/strategy for the Department
- Track every dollar spent and work from a balanced cash picture (available dollars to projected expenditures)
- Customized for NC after extensive best practice research
  - Modeled after Florida DOT



# 10-Year Program and Resource Plan

## Resource Allocation by Major Program Areas

Program	10 Year Allocation
Construction and Engineering	\$ 28.5 B
Maintenance	\$ 14.0 B
Operations	\$ 2.3 B
Administration	\$ 3.6 B
<b>Total Program</b>	<b>\$ 48.4 B</b>
<i>Transfers</i>	<u>\$ 4.0 B</u>
<b>Total Budget</b>	<b>\$ 52.4 B</b>



## 5-Year Work Program

- Provides a level of detail that guides day-to-day operational plans of NCDOT
- Represents a “snapshot” schedule of near term Projects, Programs and Services to be delivered
- Ongoing objective: work towards 95% delivery rate (on time, on budget)



# Investment Mix Overview

Investment by Transportation Goal	Percentage of Plan
Mobility	51%
Infrastructure Health	40%
*Safety	2%
Works Well and Great Place (Administration)	7%

Investment by Transportation Tier	Percentage of Plan
Statewide	51%
Regional	12%
Subregional	25%
Other (Operations, Administration, Reserves)	12%

\* Percentage of transportation dollars spent on Safety are actually higher due to the inherent safety improvement typically made under mobility & infrastructure health investments





## Next Steps

- DRAFT 10 & 5 Year Program plus State Transportation Improvement Program (STIP) to be released Fall 2013
- Amendments to previously adopted STIP continue monthly
- STIP delivery rate trend (last 5 years) is positive



# Strategic Prioritization

## Alpesh Patel



## Strategic Prioritization

- Strategic Planning Office of Transportation (SPOT) created in 2009 to help address reform challenges.
- First version of strategic prioritization was called P1.0 (2009), second version P2.0 (2011), now on P3.0.
- Combine data plus input of local partners to score transportation projects across the state.
- Input of key external planning partners has helped develop the strategic prioritization process.



# Current Scope of Prioritization in NCDOT

**SPOT prioritization covers 85% of STIP Construction (subject to Equity Formula)**

- **Mobility Fund & Urban Loop Processes (not subject to Equity formula)**

**Other highway programs with prioritization process outside of SPOT**

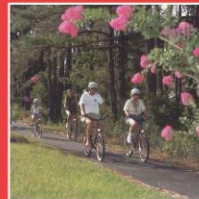
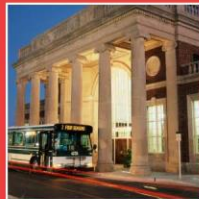
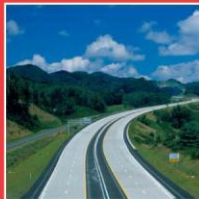
- Spot safety
- Bridges and pavement resurfacing
- Secondary Road program

**Prioritization processes exist for all non-highway modes**

**Strategic Prioritization successful due to local partners**

- Survey of MPOs and RPOs by Legislature (2012) indicates substantial support of the process





## Prioritization Now in Law

*“The Department shall develop and utilize a process for selection of transportation projects that is based on professional standards in order to most efficiently use limited resources to benefit all citizens of the State.*

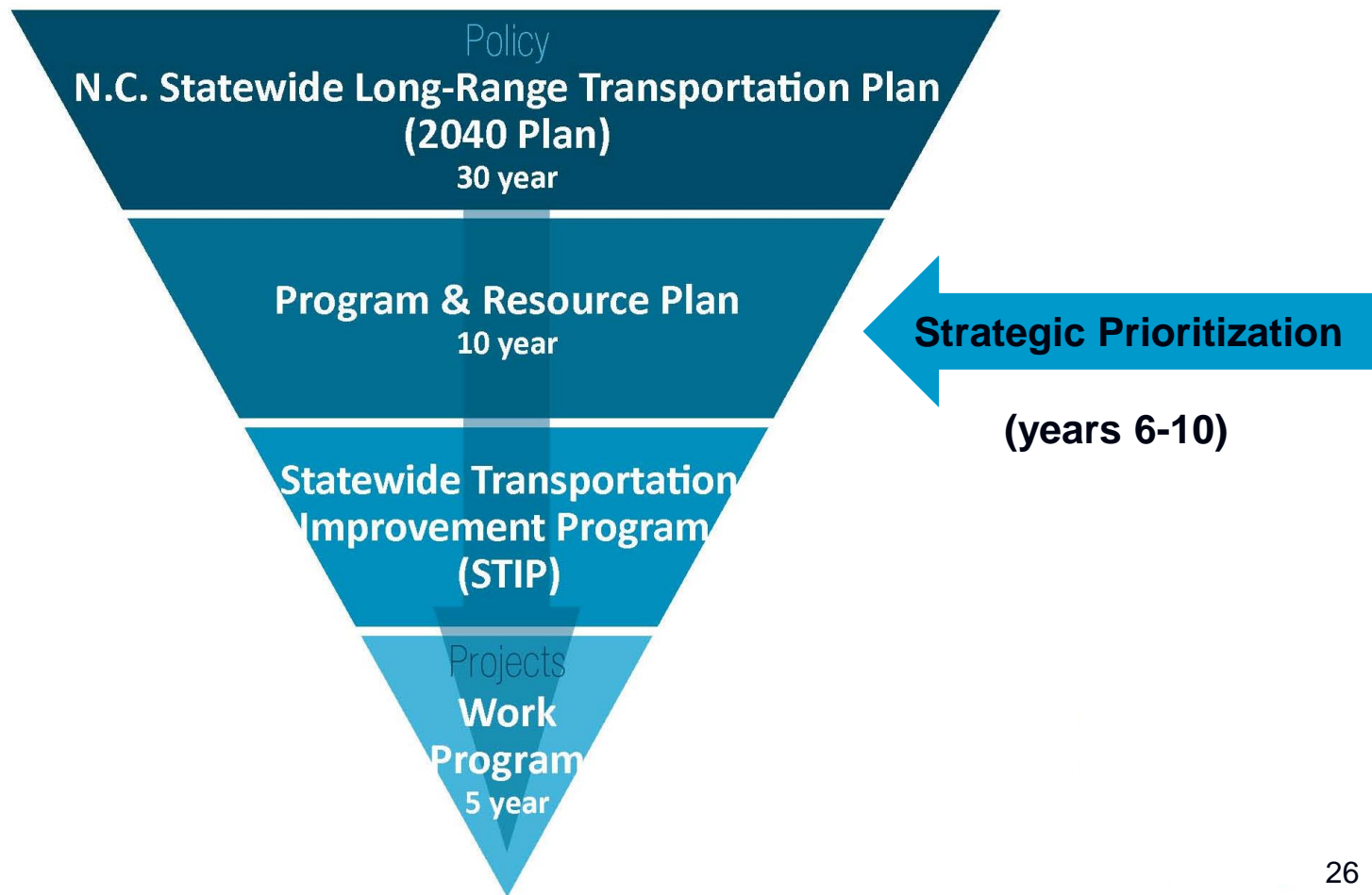
*The strategic prioritization process should be a systematic, data-driven process that includes a combination of quantitative data, qualitative input, and multimodal characteristics, and should include local input.*

***The Department shall develop a process for standardizing or approving local methodology used in Metropolitan Planning Organization and Rural Transportation Planning Organization prioritization.”***

***- S.L. 2012-84***



## How it All Fits Together: NCDOT Policy to Projects





# Strategic Prioritization and Programming Process

## 1. Score

### Prioritize Projects using

- Data
- Local Input
- Multimodal Characteristics
- Classify ranked Projects into Buckets (Mode, Goal, Tier)

## 2. Strategize

### Set Investment Strategy

- Conduct Scenario/Trade-off Analysis with DOT & Partners
- Constrained only by Total Available Revenue

## 3. Schedule

### Program Projects

- Develop STIP using Project Rankings & Investment Strategy
- Apply Constraints
- Compare Selected Strategy vs. Applied Constraints



# Current Highway Prioritization Model

**Total Score = Quantitative Score + Local Input/Rank + Multimodal Score**

## Quantitative Score

- Congestion Score - (volume/capacity + average daily traffic)
- Pavement Score - (pavement condition rating)
- Safety Score - (critical crash rate, crash severity, crash density)
- Benefit Cost - (travel time savings divided by cost of the project)
- Economic Competitiveness - (value added in area by constructing project)
- Shoulder Width - (existing vs. design)
- Lane Width - (existing vs. design)

**Local Input/Rank Score** driven by top local priority projects

MPO/RPO Rank — use local methodology to rank order priorities

Division Rank — use knowledge of local area to rank order priorities

**Multimodal Bonus Score** – enhancing multimodal connections/choices





# Aviation, Rail, and Ferry Prioritization Processes

- **Aviation** – Data only drives scoring. (17 categories/activities within three NCDOT Goals of Safety, Infrastructure Health and Mobility)
- **Rail** – Data only drives scoring. High-speed rail projects driven by grant requirements. Grade-crossing projects are evaluated by a rail investigative index (Average Daily Traffic and frequency of trains)
- **Ferry** – Data only drives scoring. Condition of vessels and facilities (buildings and ferry terminals)
- Bike/Ped and Transit prioritization criteria under revision in P3.0



# Strategic Prioritization and Programming Process

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# Outreach → Investment Strategy Summits

## Summits held throughout NC

- Partner and public input opportunity

## Purpose is to seek input of where to apply expected 10-Year revenue

- What are the high-level priorities and what is the investment needed to achieve those priorities?

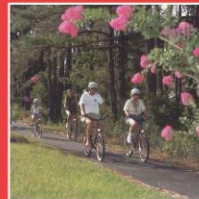
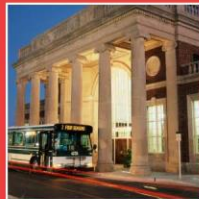
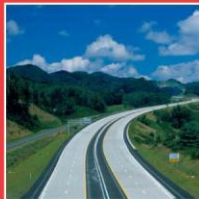


## Use LOS to determine return on investment

(more \$'s = improved LOS and higher performance results)

**Outcome is a “strategy of where transportation \$ should be spent”**





# Strategic Prioritization and Programming Process

## 1. Score

### Prioritize Projects Using

- Data
- Local Input
- Multimodal Characteristics

## 2. Strategize

### Set Investment Strategy

- Classify ranked Projects into Buckets (Mode, Goal, Tier)
- Conduct Scenario/Trade-off Analysis with DOT & Partners
- Constrained only by Total Available Revenue

## 3. Schedule

### Program Projects

- Develop STIP using Project Rankings & Investment Strategy
- Apply Funding Eligibility Constraints
- Compare Selected Strategy vs. Applied Constraints





# Enhancements to P2.0 Will Result in P3.0

## Based on Partner Input and New Administration:

- Economic & Employment Impact component & scoring criteria
- Better travel time data
- Military base and seaport connections
- Bicycle & Pedestrian scoring (in progress)
- Public Transportation scoring (in progress)
- Automated project cost-estimation tool (creates statewide consistency)

**Prioritization 3.0 goes “live” early 2014**



# North Carolina Mobility Fund

## Alpesh Patel



**MOBILITYFUND**  
NORTH CAROLINA



# History

## Created in 2010

- First project is I-85 Yadkin River Bridge Phase II
- Addresses critical congestion bottlenecks of statewide and regional importance
- Improves NC logistics and economic development capabilities
- Initial project selection criteria developed with assistance from public and key stakeholders, in accordance with statute
- FY 13 = \$75.5M; FY 14+ = \$58M

## Legislature modified project selection language in 2011

- NCDOT revised project selection criteria – greater emphasis on travel time savings

## NCDOT solicited candidate projects in December 2011

- Submittal window open December 1, 2011 – February 29, 2012
- Available to public, partners, and stakeholders
- 95 projects evaluated for Mobility Funds



# Minimum Eligibility Requirements

- **Must be on Statewide or Regional Tier**
- **Focus on short delivery time – funds must be ready for construction within 5 years.**
- **Must be identified on an adopted long-range transportation plan, consistent with a local land use plan where available.**
- **Projects must be in a conforming air quality plan in non-attainment or maintenance areas.**
- **Capital expenditures only; Maintenance, Operational & Planning costs ineligible.**
- **No minimum cost as threshold for funding.**





## Project Scoring Criteria & Weights

CRITERIA	WEIGHT	DESCRIPTION
<b>Mobility Benefit / Cost</b>	<b>80%</b>	<ul style="list-style-type: none"> <li>• Measured by travel time savings (in vehicle hours)</li> <li>• Divided by “cost to Mobility Fund”</li> <li>• Used to compare projects across transportation modes</li> </ul>
<b>Multimodal</b>	<b>20%</b>	<ul style="list-style-type: none"> <li>• Yes / No question</li> <li>• Project improves more than one mode of travel</li> <li>• Sliding scale</li> </ul>

***No Cap on the Mobility Benefit/Cost Scoring***



# Mobility Fund Process

**Candidate projects submitted to NCDOT**

**95 Projects evaluated - DOT reviewed data to ensure quality control**

**Projects ranked using scoring factors**

**DOT developed Draft Funding Schedule considering:**

- Project readiness (i.e. when project can be let for construction)
- Availability of Mobility Fund dollars

**Projects scheduled for construction included in DRAFT 10 Year Policy to Projects Document / STIP (released October 2012)**



# Urban Loop Prioritization

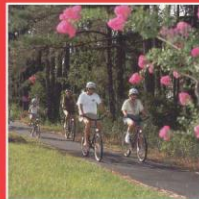
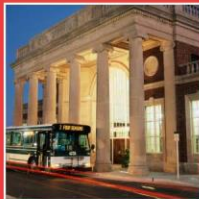
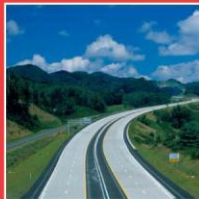
## Alpesh Patel



## Urban Loop Facts

- 10 Urban Loop Areas
- 21 Urban Loop TIP Projects and 4 Urban Loop TIP Interchange projects
- Remaining cost to complete the system is more than \$8 billion
- At current funding levels, it will take more than 50 years to complete
- Separate prioritization process and funds not subject to equity
- Extensive public input developing the process
- Objective, data-driven process





# Urban Loop Prioritization

## Formula Components

- **Needs Factors**
  - Congestion needs 10%
  - Safety needs 5%
- **Benefits Factors**
  - Travel time savings (each project) 10%
  - Travel time savings (all projects) 15%
  - Economic Development 15%
  - Freight Volume 10%
  - Total Traffic 10%
  - Multi-modal 5%
  - Protected Right-of-way 10%
  - Connectivity 10%
- **Divided by Cost**



## Legislative Changes - 2012

- **Section 28.34 (a) . G.S. 136-180** directs NCDOT to designate Loop projects and continue a prioritization process. Exceptions are:
  - Charlotte (I-485 Widening)
  - Greensboro (I-840 Western Loop (Sections C/D))
  - Greensboro (I-840 Eastern Loop (Section B))
  - Wilmington (US 17 Bypass)
- Work with local communities to seek other creative funding strategies – every local dollar increases chances for accelerated delivery
- Conduct formal re-prioritization for all projects in 2014



# State Transportation Improvement Program (STIP)

Calvin Leggett

# State Transportation Improvement Program (STIP)

## Statutory Requirements

### *Federal*

- Spans a minimum 4-year period
- Fiscally constrained by year
- Submitted for FHWA approval at least every 4 years
- Public has opportunity to comment on TIP document
- Includes all capital and non-capital projects using Title 23 USC or Title 49 USC funds, other than certain safety, planning, and research funds.
- Includes metropolitan TIPs from MPOs

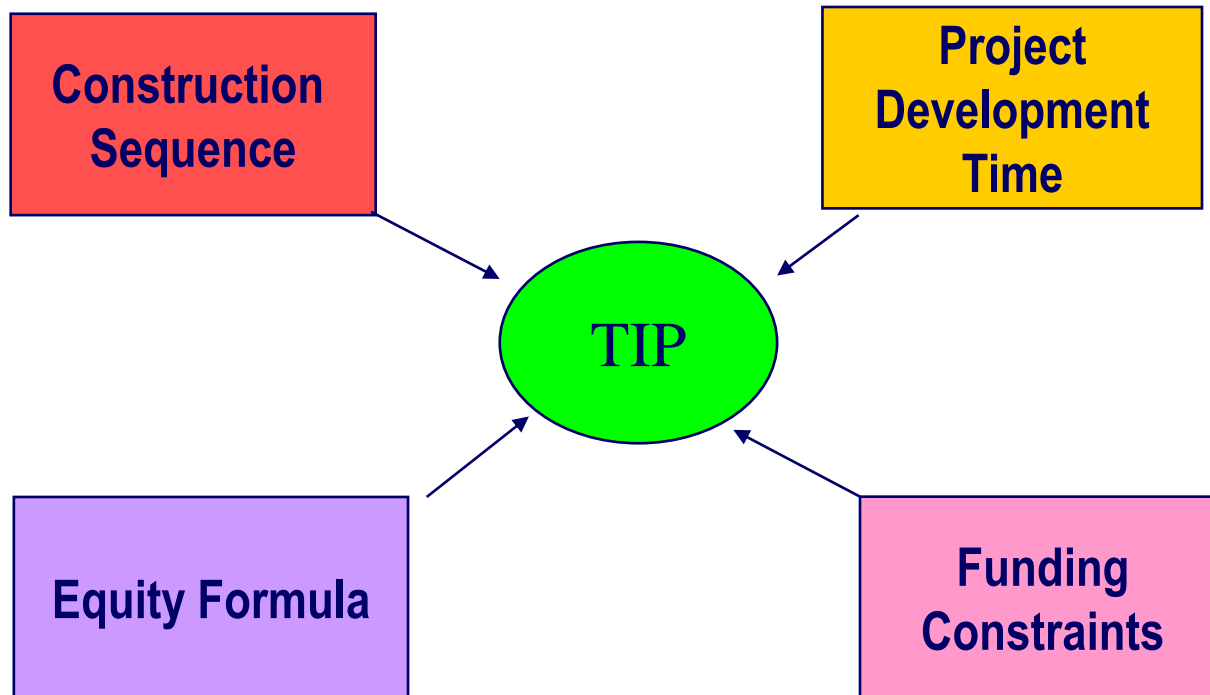
### *State*

- Board of Transportation function
- Spans 7-year period
- TIP funds subject to equity formula, except:
  - \*Urban loops
  - \*Mobility Funds
  - \* Federal-aid CMAQ
  - \* Federal competitive and discretionary grants
- NCDOT may receive loans from local government & non-profit entities to advance construction





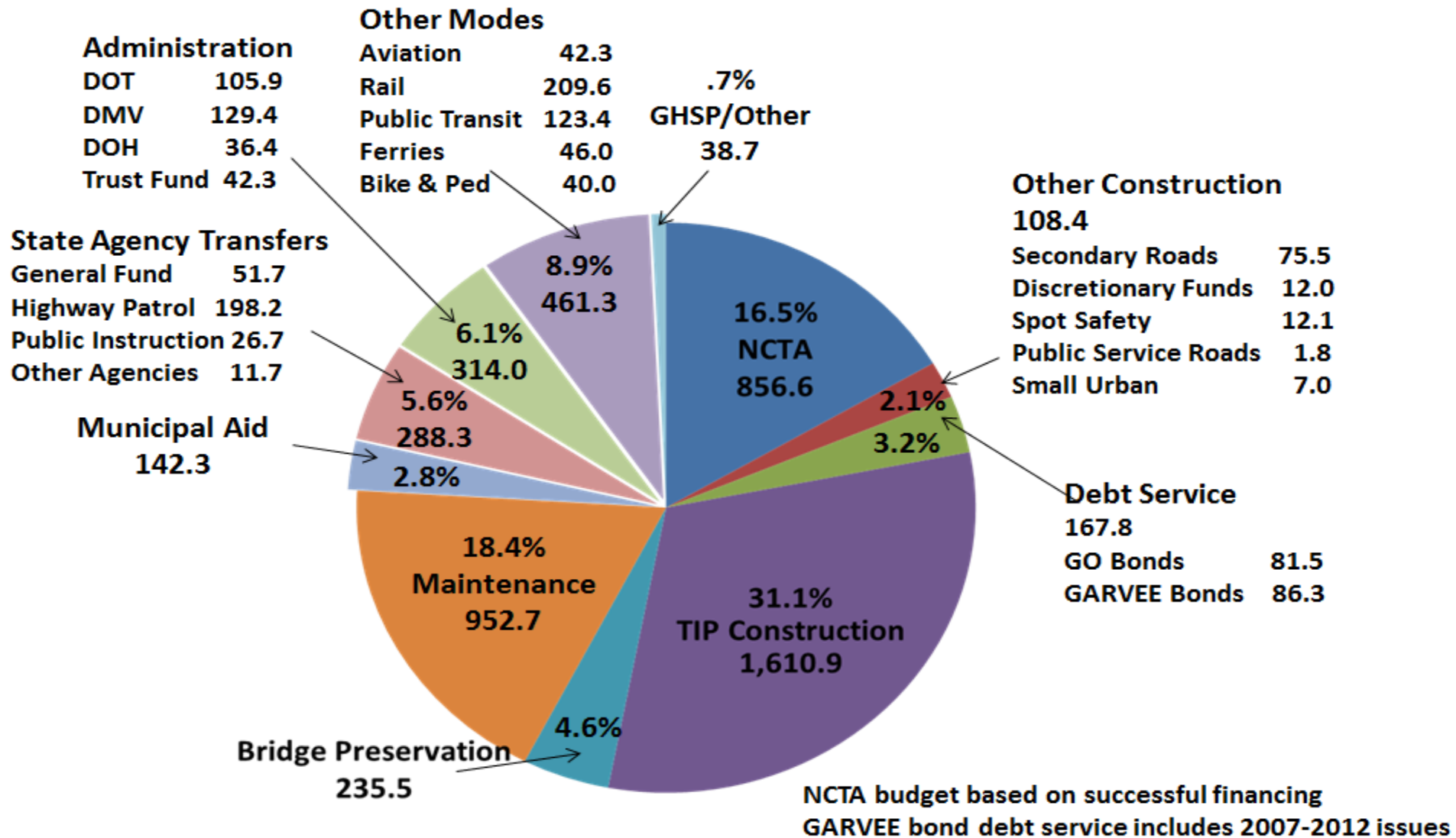
# Additional Information on Factors Influencing STIP



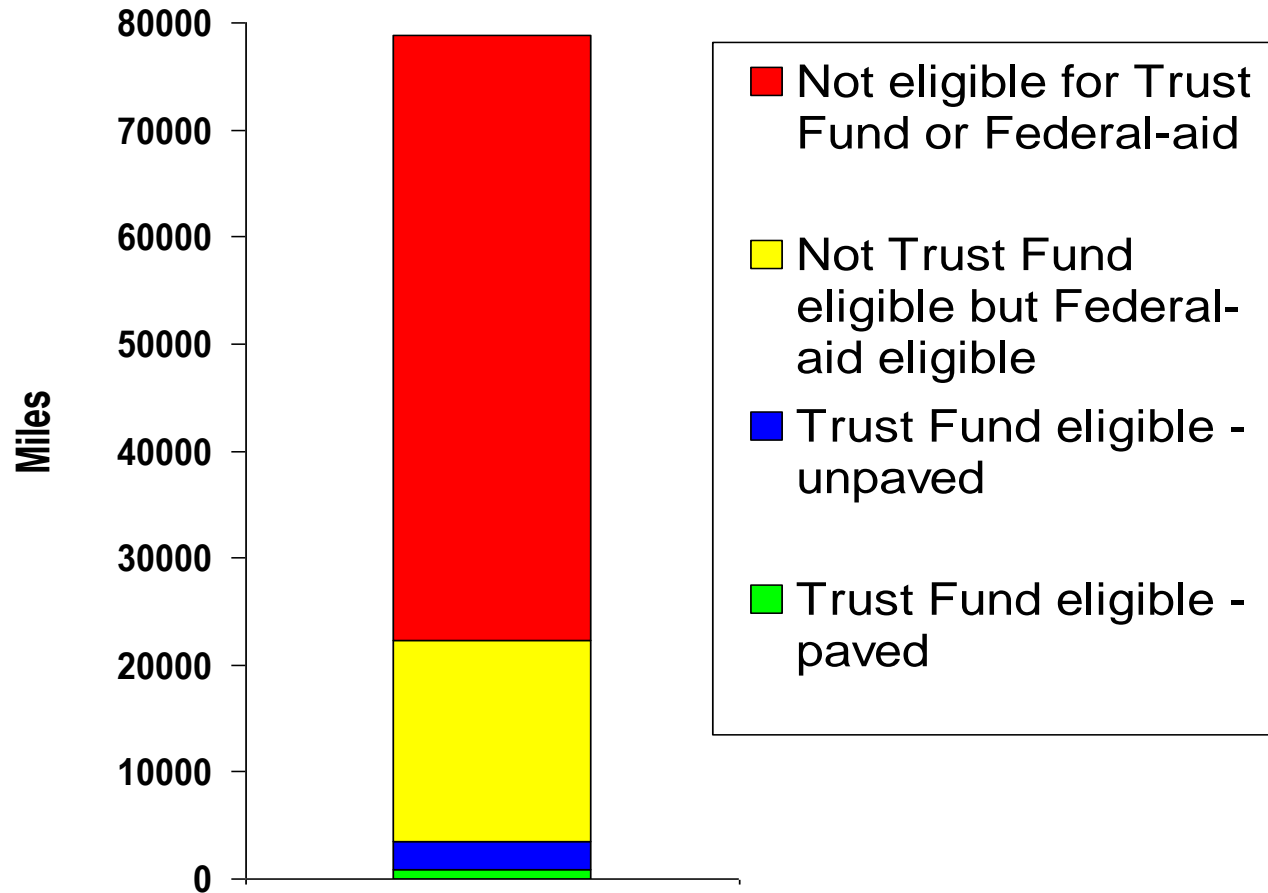
**Prioritization Results  $\neq$  Programming**

# Projected Uses of NCDOT Appropriations 2012-13

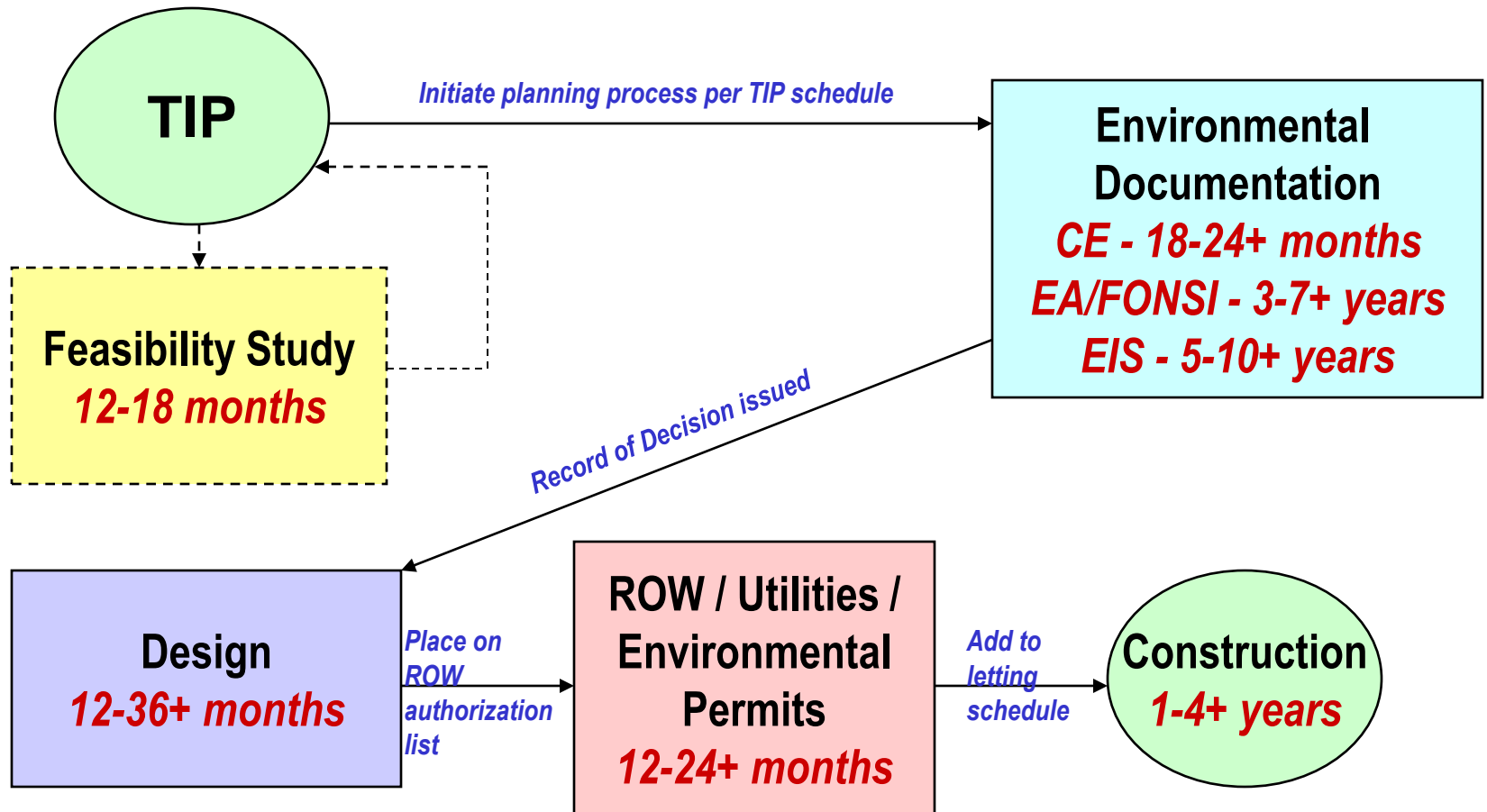
## Total Funding = \$5.2 Billion



# Highway System Eligibility by Funding Source



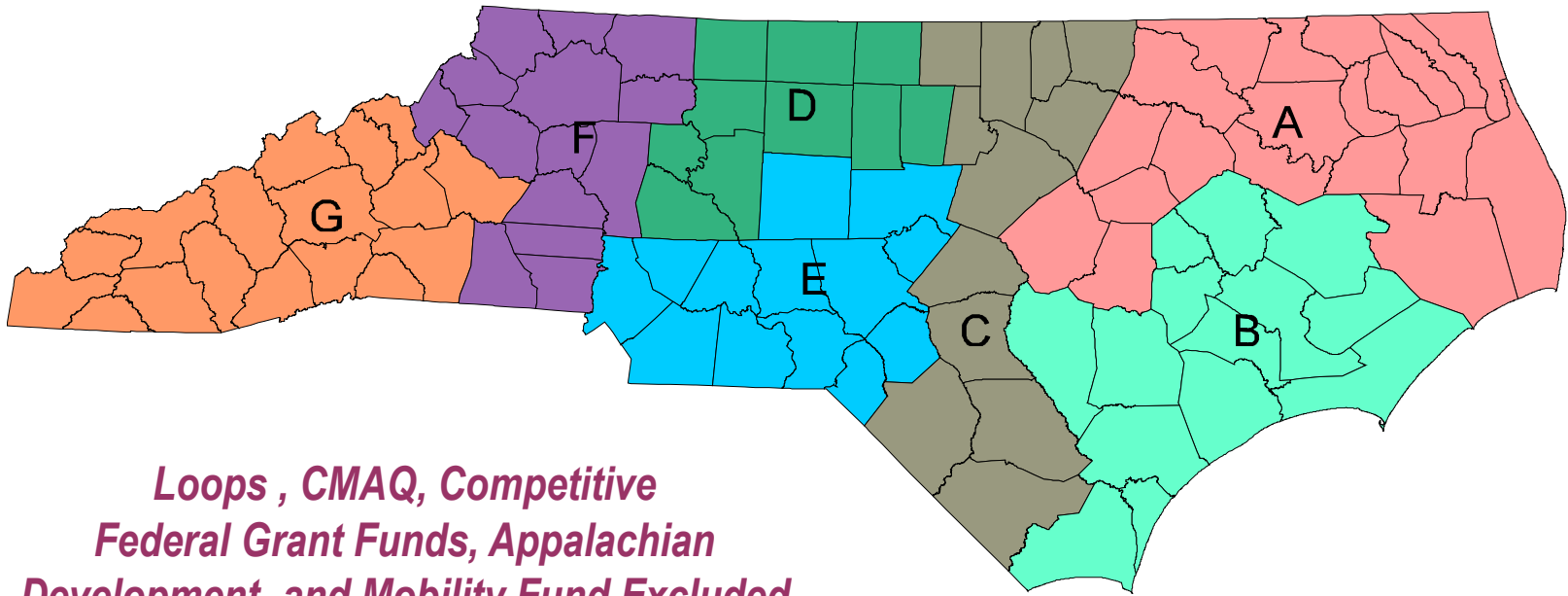
# Project Development Stages





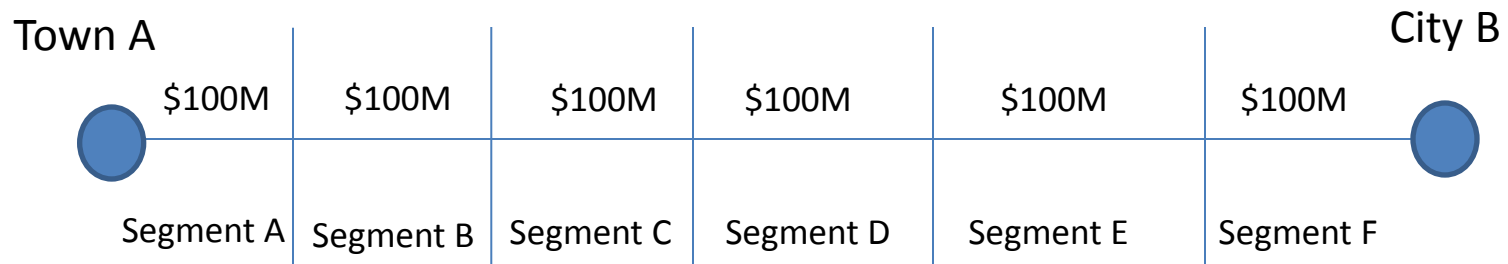
# 1989 Equity Formula

<b>50%</b> <b>POPULATION OF REGION</b> <b>AS PERCENT OF STATE</b>	<b>25%</b> <b>REMAINING</b> <b>INTRASTATE</b> <b>SYSTEM</b> <b>MILES</b>	<b>25%</b> <b>EQUAL</b> <b>SHARE</b>
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*Loops , CMAQ, Competitive  
Federal Grant Funds, Appalachian  
Development, and Mobility Fund Excluded*

# Construction Sequencing \$600M Project





## MAP-21

- 27-month bill
- SAFETEA-LU expired on 9/30/09
- 10 extensions (final one from 7/1/12 – 7/6/12)



# Unpaved Secondary Roads Prioritization Process

**Delbert Roddenberry**





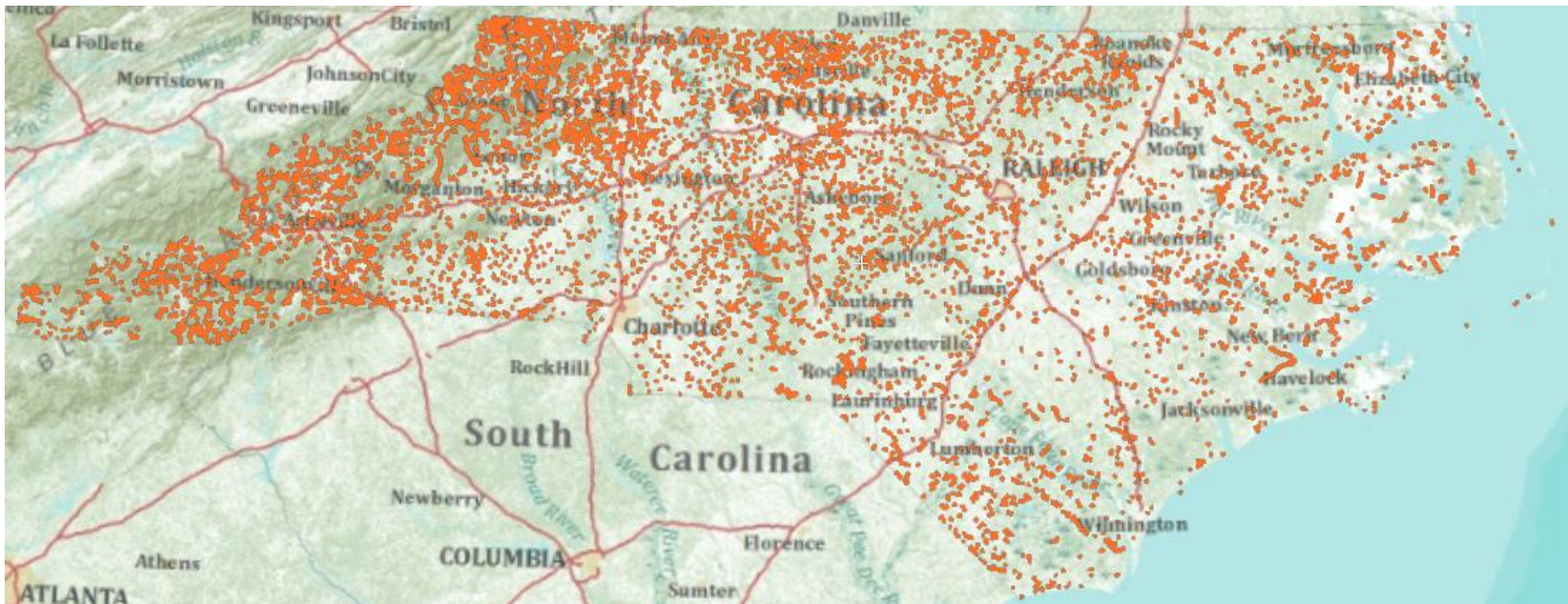
# State Maintained **Unpaved** Roads







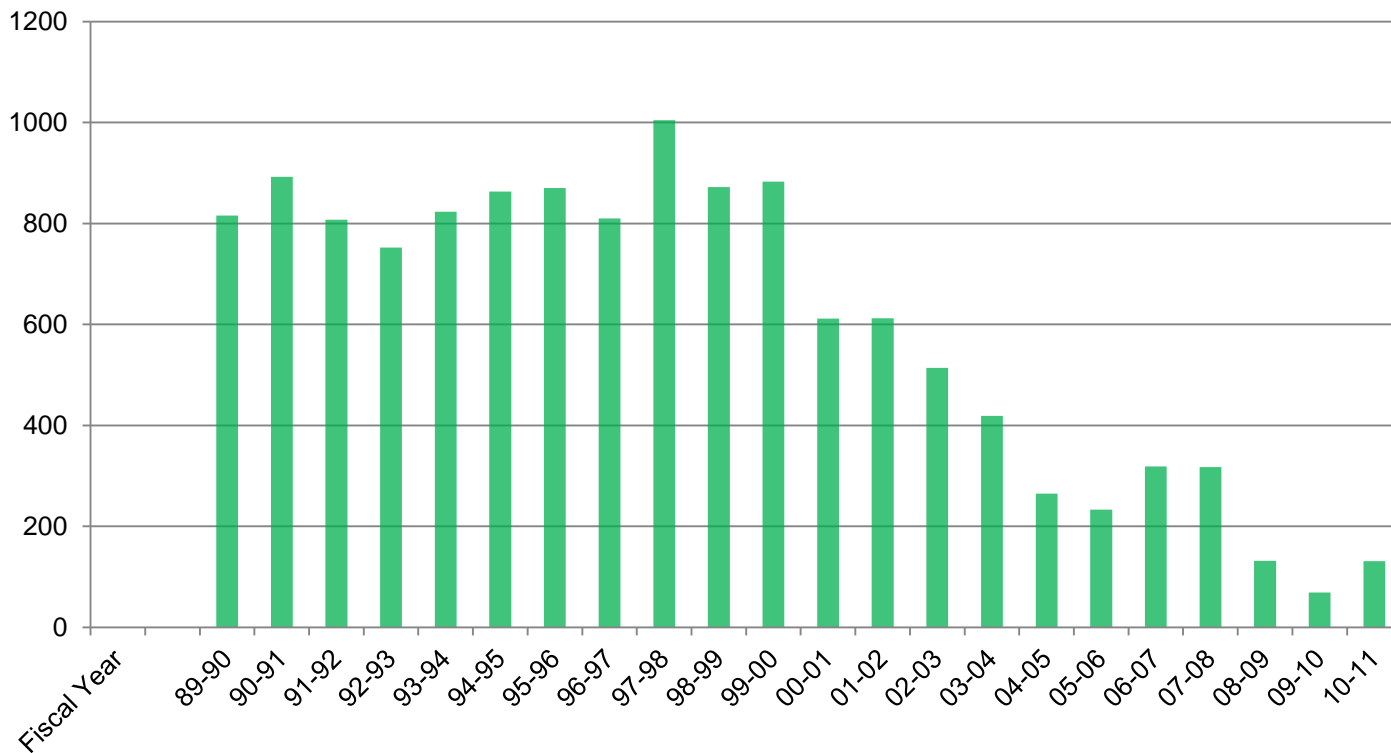
# What is Left



- ~ **3630 miles** of Unpaved SR Routes
  - Miles on Hold List: 2070
  - Miles Eligible for Rating: 1560



## Miles of Dirt Road Paving



> 13,000 Miles Paved from 1989 to 2011



## Paving Priority Selection

- Unpaved Road Improvement Projects:
- Periodic Rating Cycle with point system
  - - Land use Characteristics
  - - Traffic Volume
  - - Route Characteristics
- 100 County Specific Prioritization Lists





# Paving Program Challenges

- Right-of-Way
- Constructability and environmental permitting issues
- Maintenance costs of paved vs. unpaved roads
- Increasing cost of construction versus homes served



## Statutory Changes 2005-2006

- Began to transition to an Improvement Program to better address safety and mobility needs through modernization improvements on the secondary road system
- Incorporate widening, resurfacing, safety, and bridge replacement projects on the Secondary Paved System (Modeled the *NC Moving Ahead!* program)
- Emphasis placed on completion of the paving program to the extent possible in counties where the unpaved mileage is significant.



# House Bill 950 (Fiscal Year 2012-13)

## Statewide Prioritization

### ***PRIORITIZE PAVING OF UNPAVED ROADS THROUGHOUT THE STATE SECTION 24.15.***

*For fiscal year 2012-2013, the Department of Transportation shall expend funds allocated to the paving of unpaved secondary roads for the paving of unpaved secondary roads based on a statewide prioritization. The Department shall pave the eligible unpaved secondary roads that receive the highest priority ranking within this statewide prioritization, notwithstanding the distribution formula in G.S. 136-17.2A or any other funding distribution formula in law. This section applies to funding for the paving of secondary roads from both the Highway Fund and the Highway Trust Fund.*



# Looking Forward

## Unpaved Roads and Paved Roads

- How does North Carolina address the needs of the secondary road system with limited resources and increasing demand and inventory?





# Looking Forward

## Unpaved Roads

- Consider continuing the statewide paving priority system for unpaved roads.
- Consider minimum threshold for paving unpaved roads
  - For example, minimum traffic volumes, land use density, etc...
- Consider designating a portion of secondary road program funds for paving prioritized unpaved roads.



# Looking Forward

## Unpaved Roads

### Potential benefits of prioritized system:

- Increases confidence that funds are being expended on projects of greatest need
- Continues commitment to pave unpaved roads

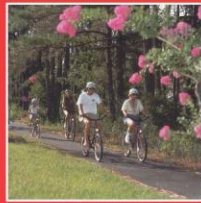
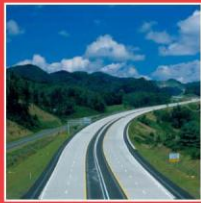
### Potential impacts of prioritized system:

- Less local involvement
- Negative reaction from property owners



## Online Resources

- **Reform webpage** <http://www.ncdot.gov/performance/reform/>
- **2040 Plan** <http://ncdot.gov/performance/reform/2040Plan/>
- **Prioritization process**  
<http://ncdot.gov/performance/reform/prioritization/>
- **Project search engine tool** <http://www.ncdot.gov/projects/>
- **Secondary Roads Program**  
<https://connect.ncdot.gov/resources/stateroads/Pages/default.aspx>



# Questions?